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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/670,370	09/26/2003	Dale E. Husted	IDE.P0001	6868

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EXAMINER

PICKARD, ALISON K

ART UNIT	PAPER NUMBER
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3676

DATE MAILED: 03/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/670,370

Applicant(s)

HUSTED, DALE E.

Examiner

Alison K. Pickard

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 19 and 20 is/are allowed.
- 6) ☒ Claim(s) 1-7 and 10-18 is/are rejected.
- 7) ☒ Claim(s) 8 and 9 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>1-9-04</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 27. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-7 and 10-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over McNickle (5,503,407) in view of Hoffman (3,155,395) in view of Wheeler (1,978,239).

McNickle discloses a labyrinth seal with a windback configuration comprising a first face 40, a second face 20, an exterior surface, and an interior surface with a thread pattern 22. The thread pattern has plural teeth having first sides (toward 20), second sides (toward 40), and connecting sides that form trailing and leading edges (i.e. teeth have a thickness and therefore have edges). Oil is captured in the channel in the groove and returned to the bearing housing 8. The seal teeth are formed such that the oil flows in one direction back to the bearing and the pressure drop is divided across the teeth. Bolt 37 is considered an anti-rotation pin.

McNickle does not disclose the seal is segmented, i.e. in two halves. Hoffman teaches a labyrinth seal having plural teeth. Hoffman teaches making the seal segmented in two halves for

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easier installation. Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the seal of McNickle by making it segmented for easier installation as taught by Hoffman.

McNickle does not disclose that the first and second sides of the teeth are slanted toward the first face or that the first side has a steeper incline and angle than the second side. Wheeler teaches a labyrinth seal having plural teeth. Wheeler teaches making the teeth slanted toward the higher pressure. Wheeler teaches that the sides of the teeth are angled such that the first side is steeper and has a greater angle (e.g. a) than the second side (e.g. b). Wheeler teaches that this configuration reduce leakage by forcing the oil back toward the source before progressing along the other teeth (see page 2, lines 1-17 and 144-150). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to slant the teeth toward the higher pressure and make the teeth sides such that the first side is steeper and has a greater angle than the second side to reduce leakage and improve the seal as taught by Wheeler.

Regarding claim 12, McNickle does not disclose the claimed height ranges and clearances. Using these ranges is considered a design choice. It is not considered inventive to discover the workable or optimum ranges by routine experimentation. See *In re Aller*, 105 USPQ 233, 235 (CCPA 1955). Further, such ranges are known as evidenced by Marshall '019 (i.e. clearance range). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to use the claimed height and clearance ranges as a matter of choice in design.

Allowable Subject Matter

4. Claims 8 and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. Claims 19 and 20 are allowed.

6. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record, taken as a whole, does not show nor suggest the combination of limitations required by the claims. Specifically, the prior art lacks a segmented labyrinth seal having segments with pins and holes such that the holes and pins are configured/staggered as a function of thread patterns. The prior art discloses segmented labyrinth seals and teaches using pins and holes to join seal segments together (e.g. Fuller '082). However, the prior art does not teach staggering the pin and holes as a function of the thread patterns of the teeth on the seal. There does not appear to be any motivation, absent Applicant's own disclosure, to modify the prior art in the manner required by the claims.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alison K. Pickard whose telephone number is 703-305-0882.

The examiner can normally be reached on M-F (10-7:30), with alternate Friday's off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Knight can be reached on 703-308-3179. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Alison K. Pickard
Primary Examiner
Art Unit 3676

AP